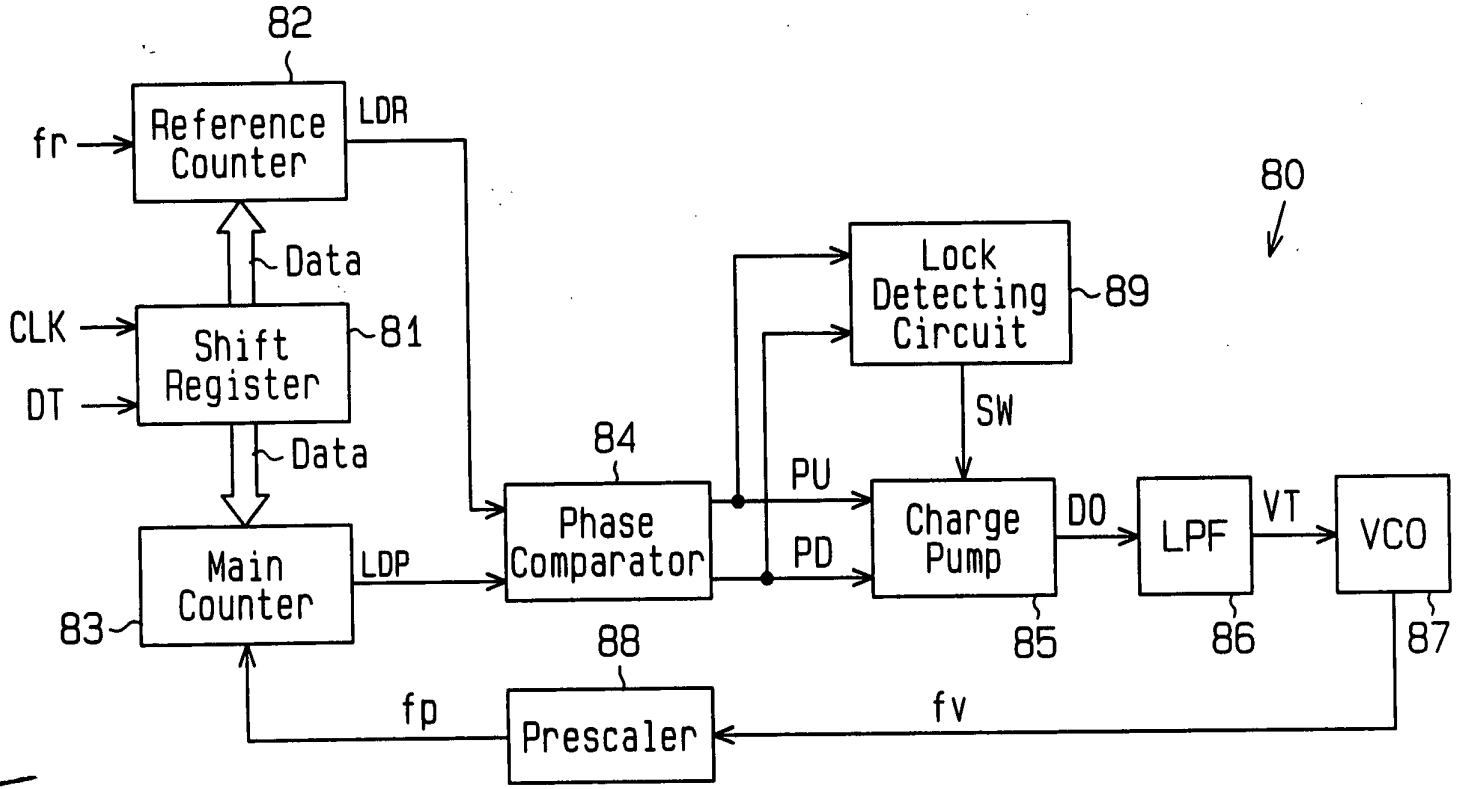
Fig.1 (Prior Art)



EP 1 061 651 A1

Fig.2

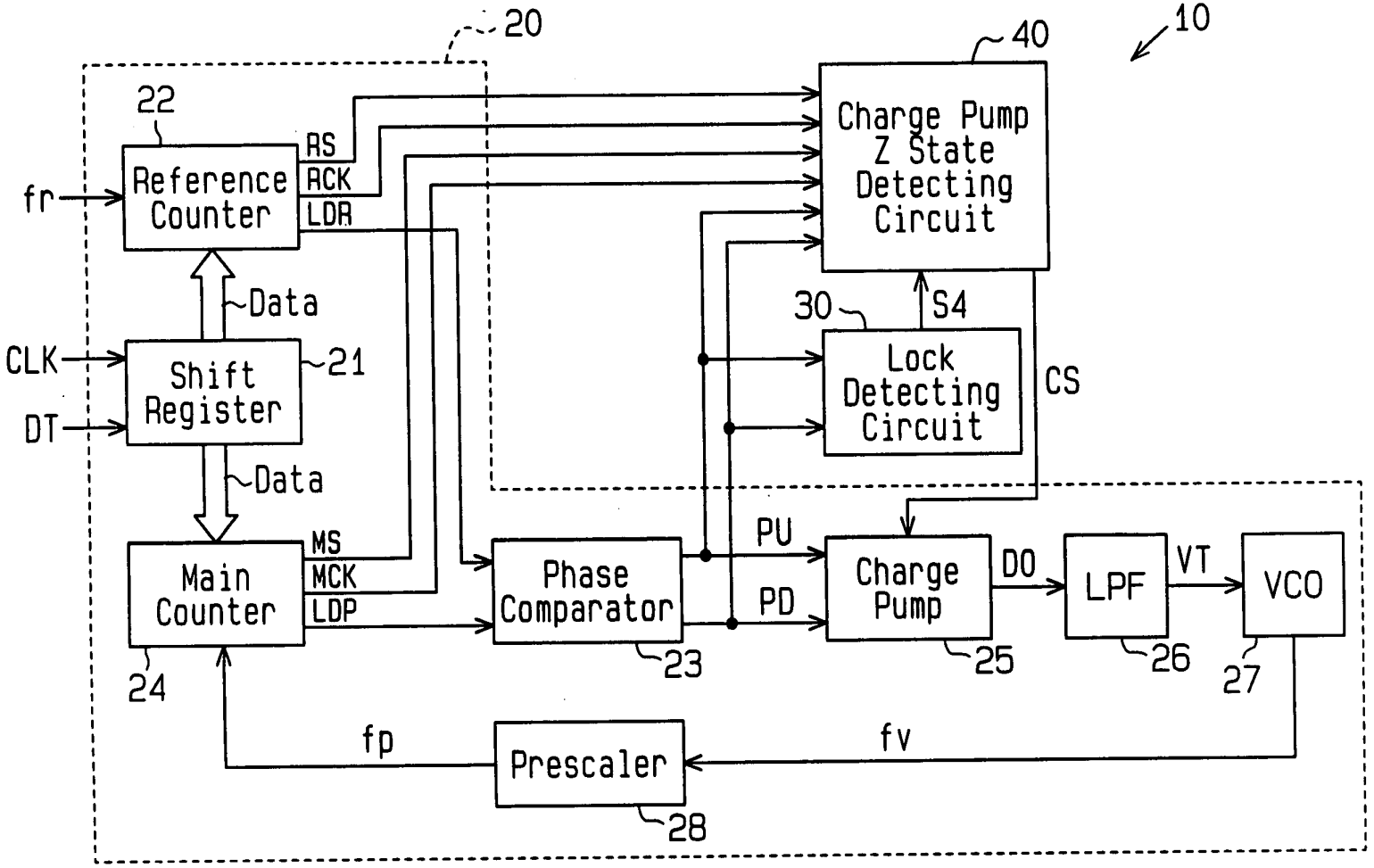


Fig.3

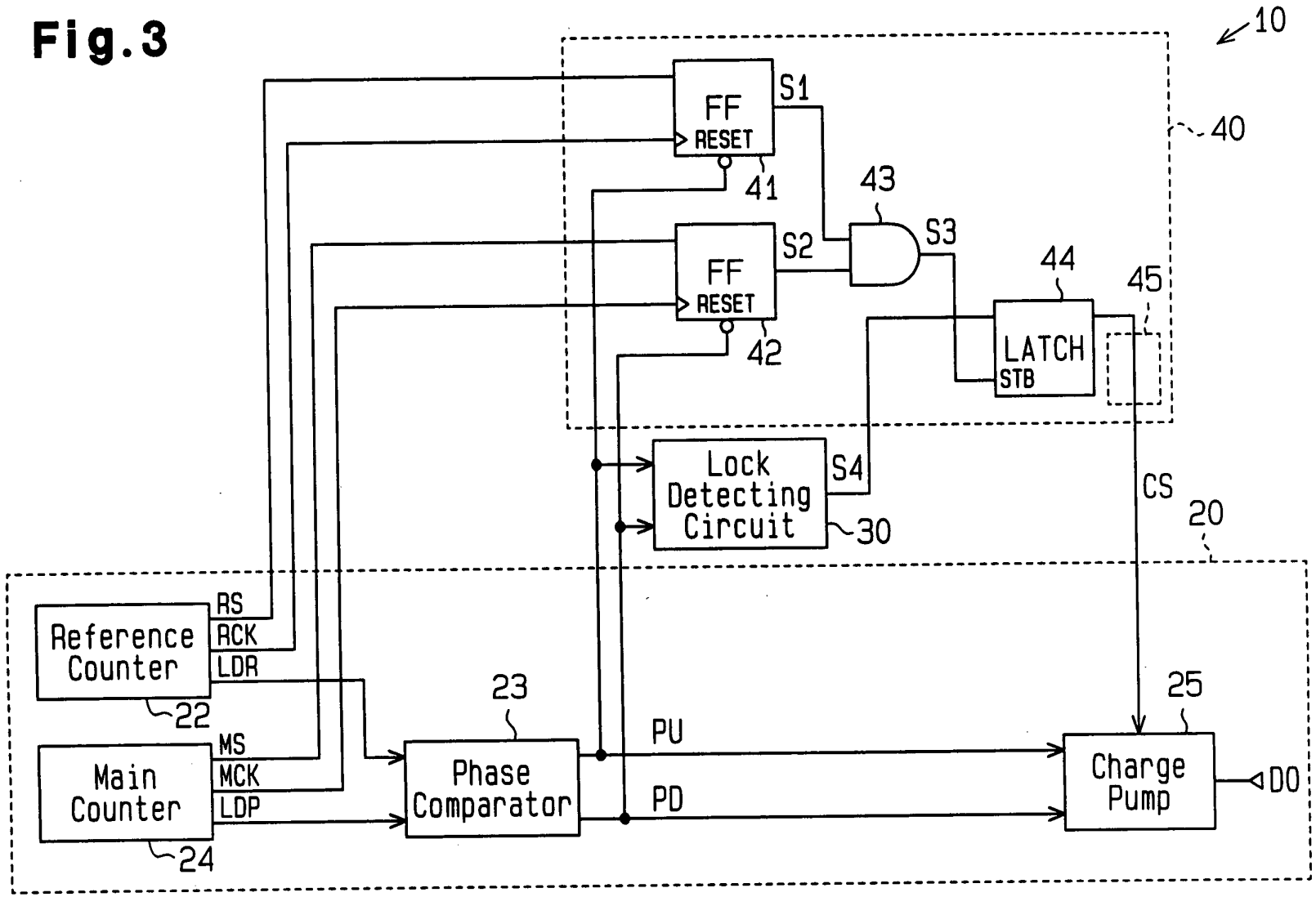

10
40
FF
RESET
S1
41
43
S3
FF
RESET
S2
42
44
45
LATCH
STB
Lock
Detecting
Circuit
S4
30
CS
20
RS
RCK
LDR
Reference
Counter
22
23
25
MS
MCK
LDP
Main
Counter
24
Phase
Comparator
PU
PD
Charge
Pump
DO

Fig.4A

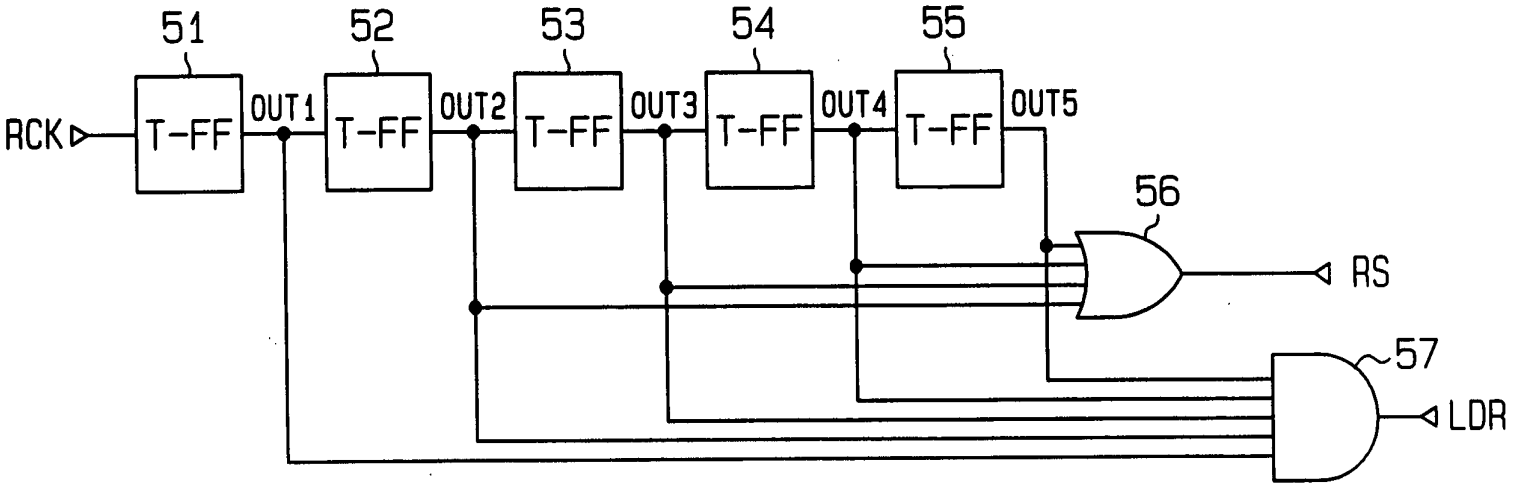

51
52
53
54
55
RCK
T-FF
T-FF
T-FF
T-FF
T-FF
OUT1
OUT2
OUT3
OUT4
OUT5
56
RS
57
LDR

Fig.4B

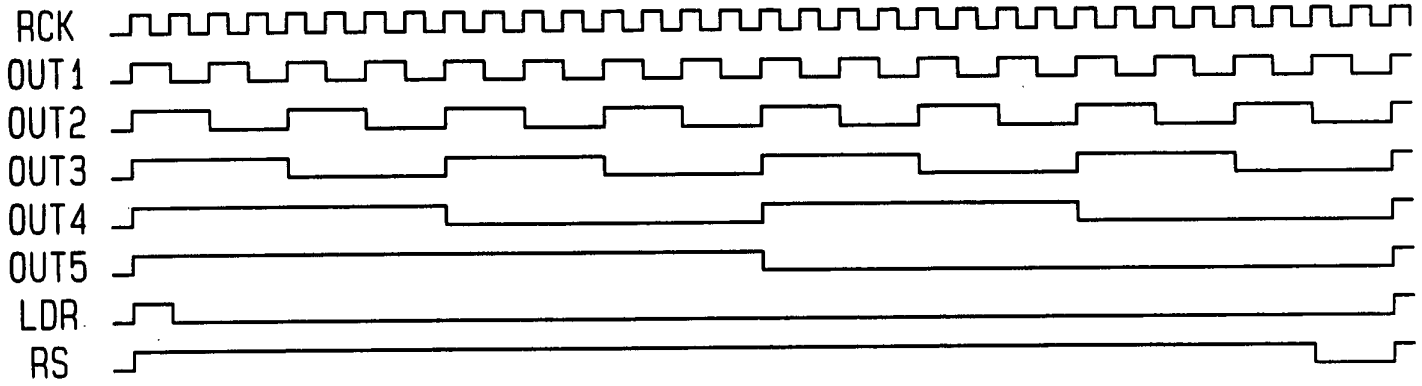

RCK
OUT1
OUT2
OUT3
OUT4
OUT5
LDR
RS

Fig.5

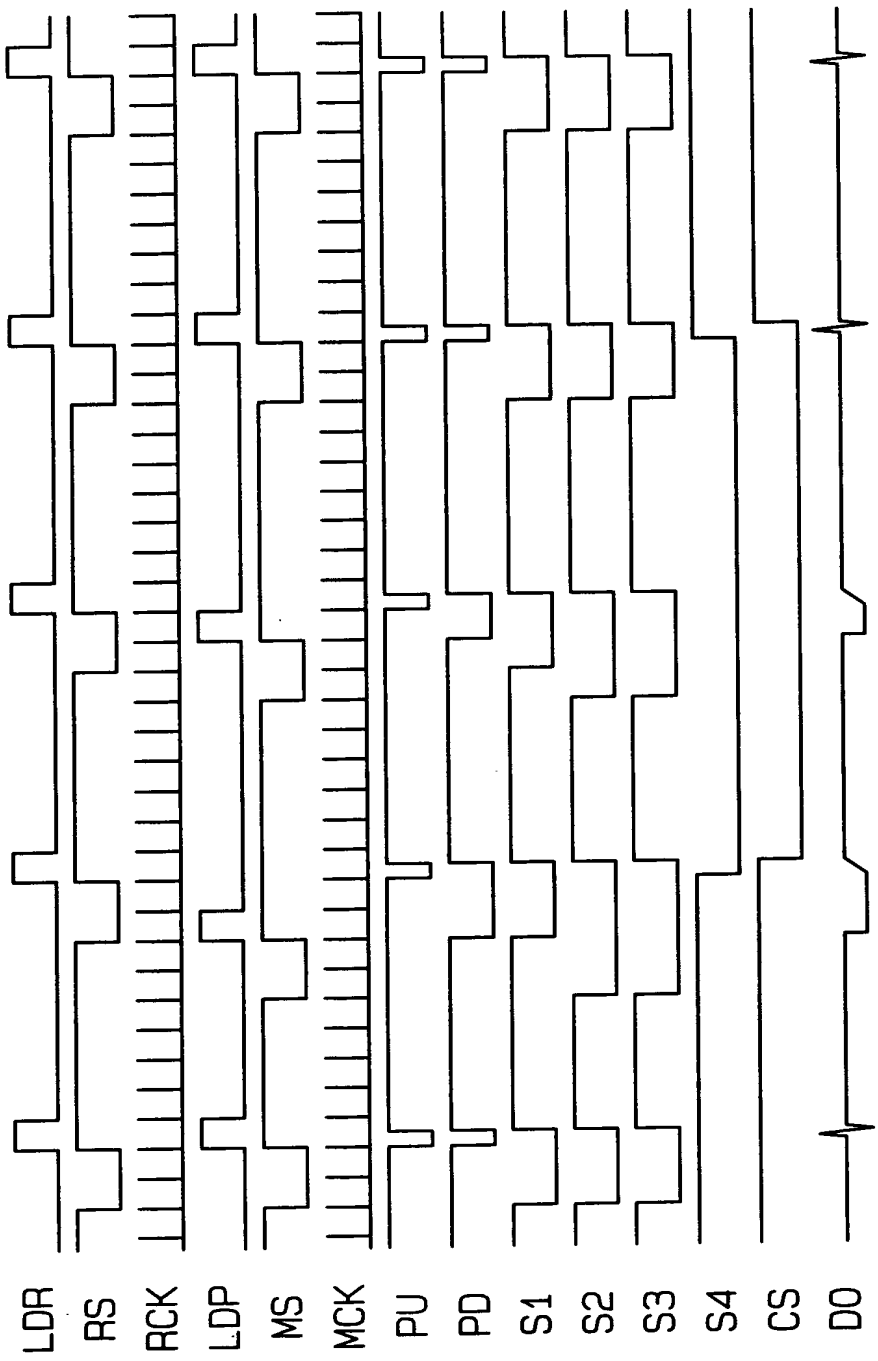
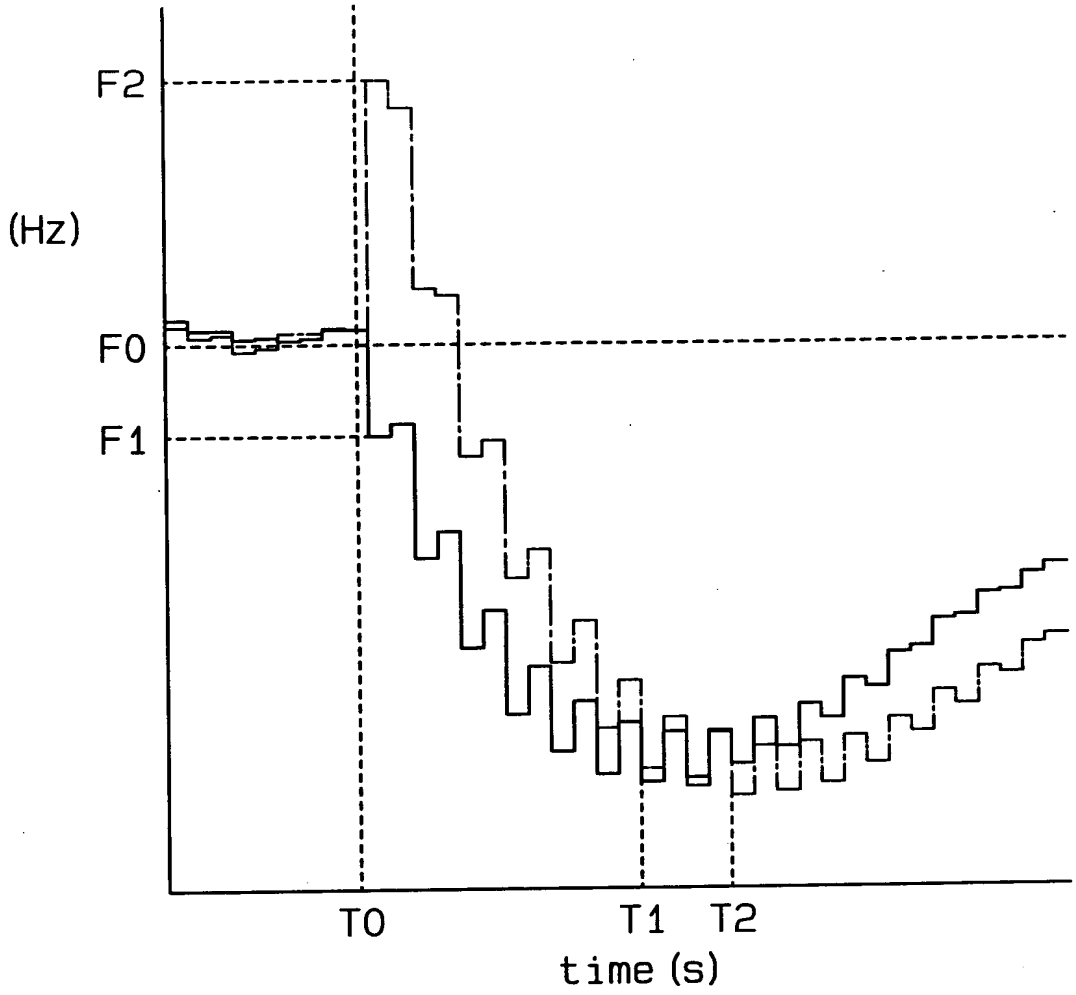


Fig.6



Solid-line Curve : Locked Waveform According to Present Embodiment

Dot-and-dash-line Curve : Locked Waveform in Conventional Circuit

Fig.7

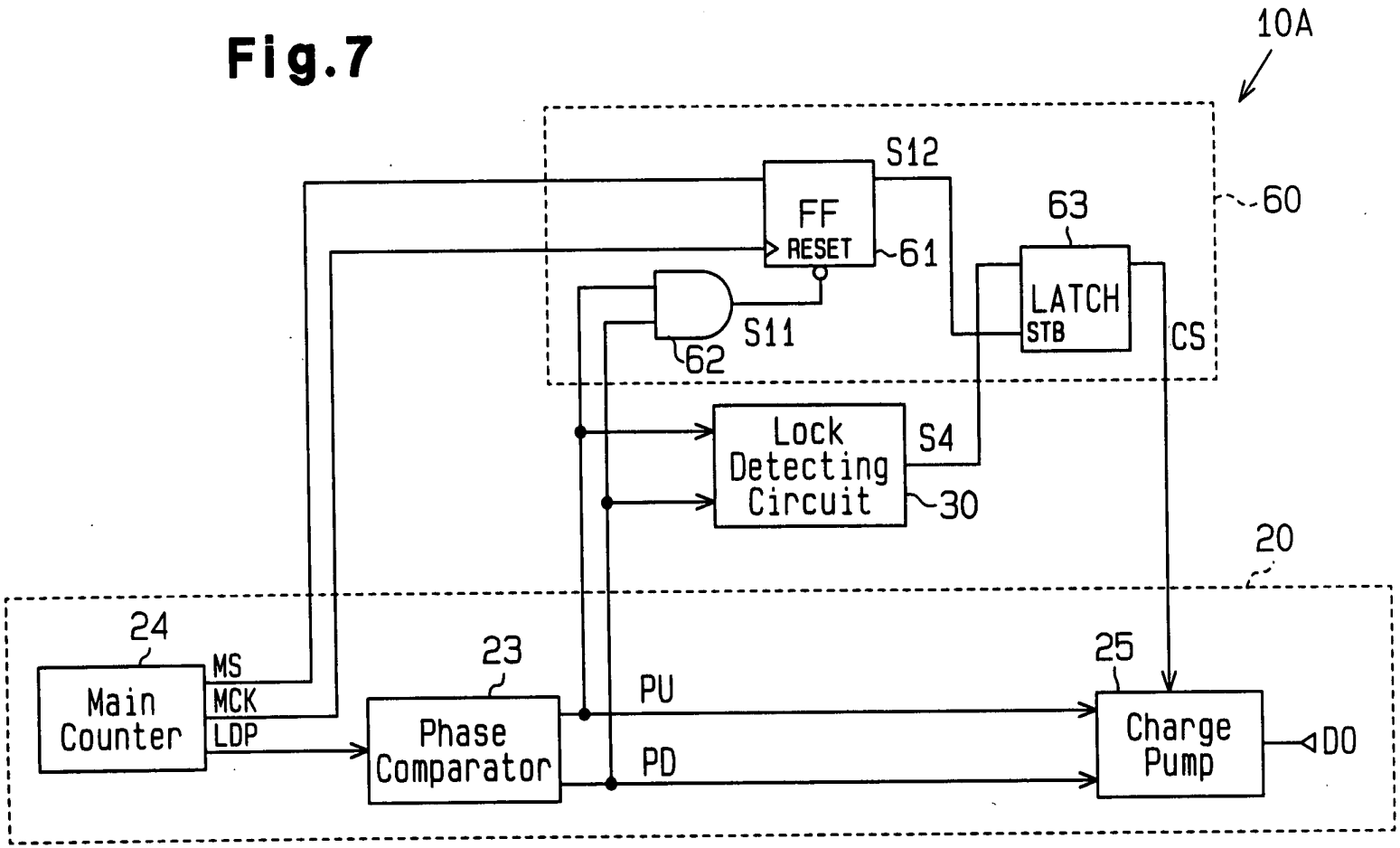

10A
S12
FF
RESET
61
60
63
LATCH
STB
CS
S11
62
Lock
Detecting
Circuit
S4
30
20
24
MS
MCK
LDP
Main
Counter
23
Phase
Comparator
PU
PD
25
Charge
Pump
DO

Fig.8

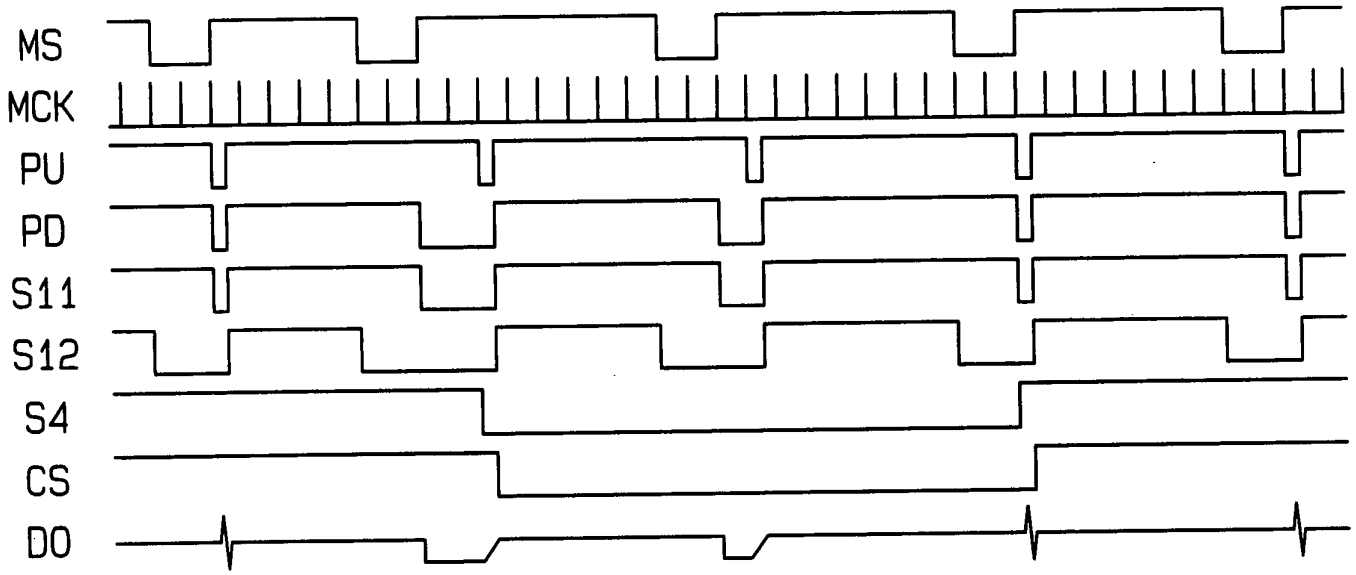
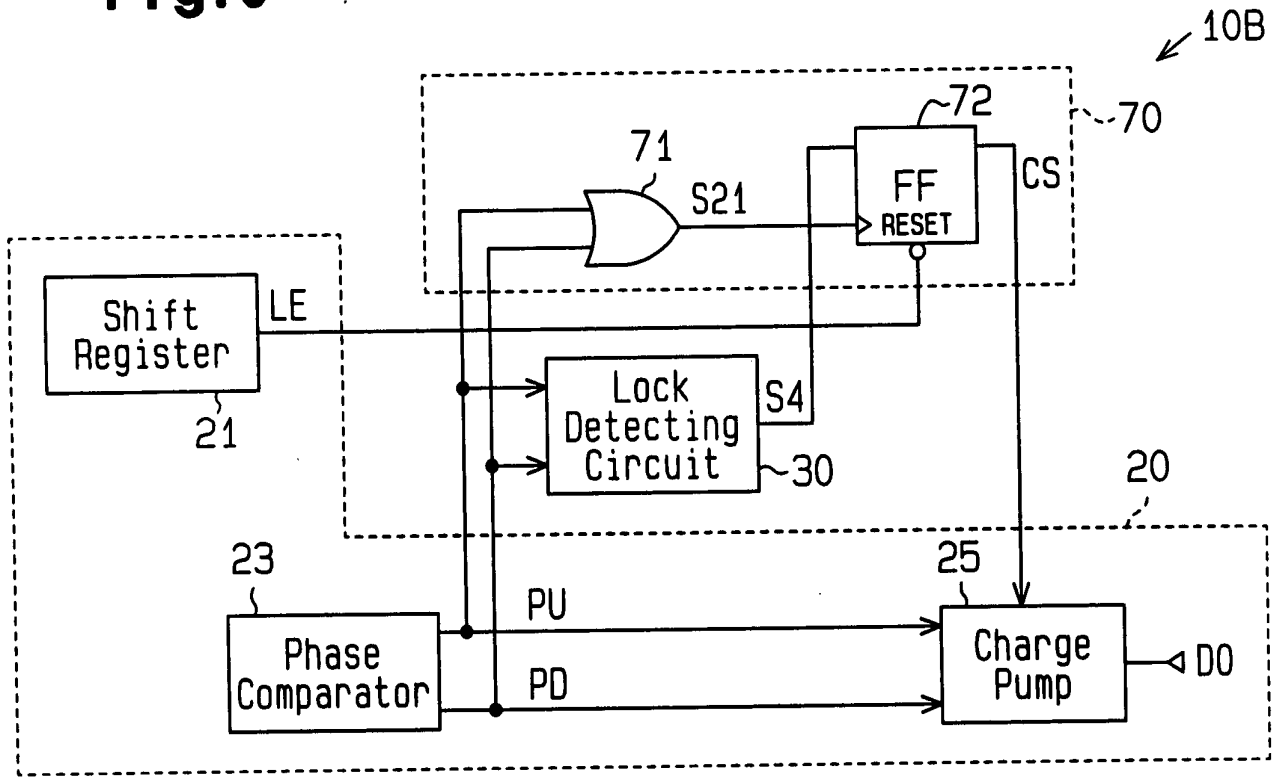


Fig.9


10B
70
72
71
S21
FF
RESET
CS
Shift
Register
LE
21
Lock
Detecting
Circuit
S4
30
20
23
25
PU
Phase
Comparator
Charge
Pump
DO
PD

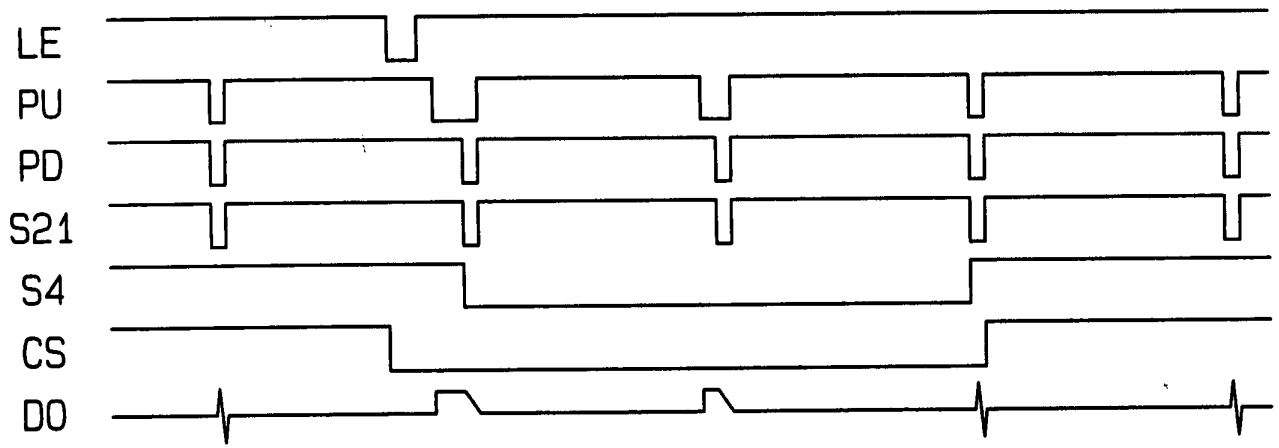



Fig.10